PATEL CHEMICALS **TECHNICAL DATA SHEET**

UNISTAR SATIN NICKEL SALT

UNISTAR SATIN NICKEL SALT is developed to produce non glaring silky, satin free brilliant deposits with high degree of ductility. The system has excellent gold and chrome receptivity and is recommended for use in plating of jewelry, hardware parts, spectacle frames, light fitting and pen parts etc.

The process employs three addition agents namely UNISTAR SATIN ADDITIVE- 545 UNISTAR SATIN ADDITIVE STN -546, and UNISTAR SATIN ADDITIVE-549

The process is simple to operate and employs equipments identical to bright nickel plating, differing only in agitation as it employs cathode movement instead of air agitation.

BATH COMPOSITION : -

UNISTAR SATIN NICKEL SALT :	550 g/ltr
UNISTAR SATIN ADDITIVE – 545 :	20 ml/ltr
UNISTAR SATIN ADDITIVE – 546 :	5 ml/ltr
UNISTAR SATIN ADDITIVE – 549 :	0.4 - 0.6 ml/ltr

OPERATING CONDITIONS

pH :	4.2 - 4.4
Density :	32 – 35° Be
Temperature :	50° - 60°C
Cathode current density :	4 – 8 A/ dm 2
Anode current density :	1 – 3 A/ dm2
Agitation :	Cathode movement
Filtration :	Only in idling condition

BATH PREPARTION :-

A fresh Satin Nickel Plating bath is prepared as follows :

Fill the plating tank to half of its volume with hot DM water and add required quantity of UNISTAR SATIN NICKEL SALT and stir to dissolve. Make the level and adjust the pH to 3.5 with dilute Sulphuric acid (25% by volume)

Dummy the bath at 3 A/sq. ft. for minimum 4 – 6 hrs by suspending a few nickel anode bars and as many

dummy cathodes as possible on the cathode bar.

Pump the hot solution to the storage tank and raise the pH to 5 - 5.4 by Nickel carbonate and 2 ml/ltr (100 volume) Hydrogen peroxide. Stir vigoursly at 50° – 65 ° C for 2 hrs. Add 2 g/ltr. activated carbon and air agitate for some time and leave it overnight.

Filter the solution back into a clean plating tank and adjust the pH to 4.4 Now the bath is ready for plating after the addition of required amount of SATIN

ADDITIVES

OPERATIONAL FEATURES

The bath is operated by cathode movement.

The bath is not to be filtered while in operation as the satinising agent will be removed partially by filtration.

The bath is to be filtered during idling period or after continuous working for 8 hours to remove the decomposed products. The bath can be operated continuously for approximately 8 hrs.

After filtering the bath for approximately 3 –4 hrs, fresh addition is made to the bath before starting plating operation.

BATH CONTROL AND REPLENISHMENT

The bath is to be maintained approximately between 32° - 35 ° Be by regular addition of UNISTAR SATIN NICKEL SALT. The contents to be maintained are :

Nickel metal :	100 - 110 g/ltr
Chloride as Nickel Chloride :	40 - 50 g/ltr
Boric acid :	35 - 40 g/ltr.

Of the three additives UNISTAR SATIN ADDITIVE - 545 and UNISTAR NICKEL ADDITIVE -546 are primary carrier additives and UNISTAR SATIN ADDITIVE-549 is the satinising agent.

After filtration of the bath UNISTAR SATIN ADDITIVE –545 is to be added 0.5 – 1 ml/ltr and UNISTAR SATIN ADDITIVE-546 is to be added 0.5 ml/ltr to be bath. UNISTAR SATIN ADDITIVE - 549 is to be added at the rate 0.3 – 0.4 ml/ltr.UNISTAR SATIN ADDITIVE -549 is to be added to the bath only after diluting it 10 times with fresh water. All care has to be taken to avoid any addition of UNISTAR SATIN ADDITIVE-549 to the bath with out diluting with fresh water.

The recommended addition for 1000 Amp. hr. is

UNISTAR SATIN UNISTAR ADDITIVE 545 :	100 – 150 ml
UNISTAR SATIN ADDITIVES 546:	100 – 200 ml
UNISTAR SATIN ADDITIVE 549 :	150 – 200 ml

Inorganic and organic impurities can be removed by dummy, high pH and activated carbon treatment, same as in case of normal bright nickel baths.

NOTE :

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